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SUBJECT: **ARCHITECTURAL TECHNICAL GUIDE 0014 (January 1, 2005)**
 Section 502 Rural Housing Demonstration Program

PURPOSE:

The purpose of this Architectural Technical Guide (ATG) is to provide general information and guidance regarding the Single Family Housing Programs, Section 502, Rural Housing Demonstration Program, which has been ongoing since the early 1990s. The basic intent of this program is to use Section 502 direct loan funds to finance innovative housing units and systems which do not meet existing published standards, rules, regulations, or policies. It permits Rural Development the opportunity to test the market acceptance and real achieved savings of such concepts which may currently be at the limits of building department and market acceptance but might otherwise offer promise for future innovative housing.

An excerpt of the complete applicant submittal package to Rural Development is attached as Exhibit A to this ATG.

IMPLEMENTATION RESPONSIBILITIES:

Rural Development personnel should inform all parties potentially interested in this innovative design program that the Colorado single point of contact person for the Rural Housing Demonstration Program is the State Architect. Should you have any further questions in this regard please contact the State Architect.

DAVID W. RIGIROZZI
State Architect
USDA/Rural Development

Attachment: Exhibit A, *"State and Field Office Roles and Responsibilities"*
 Exhibit B, *"Application for Approval of Housing Innovation"*
 Exhibit C, *"State Office Technical Evaluation Sheet"*
 Exhibit D, *"Proposal Content and Evaluation Criteria"*

**Section 502 Rural Housing
Demonstration Program
State and Field Office Roles and Responsibilities:**

1. Have a complete Rural Housing Demonstration Program package available for interested parties. (see Exhibit B to this ATG.)
 - a. Maintain a list of contacted interested parties.
 - b. Designate a State Office staff person as a single point coordinator.
 - c. Initial review should be accomplished simultaneously by the State Architect, State Housing Programs Director, and the appropriate field office where the project would be constructed.
2. Field office staff should be instructed to refer questions or interested parties to the State Office single point coordinator.
3. All proposals shall be reviewed for completeness within 15 days of receipt.
 - a. Complete proposals shall be reviewed and evaluated using the “State Office Technical Evaluation Sheet” (see Exhibit C to this ATG) based on the “Proposal Content and Evaluation Criteria” (see Exhibit D to this ATG). Written recommendations to the National Office shall be provided within 20 days of determination that the proposal is complete.
 - b. Incomplete proposals shall be returned to the submitter within 15 days of receipt with an explanation of what is missing.
4. Upon request, the State Office single point coordinator shall be able to provide the National Office with a list of package requesters as well as the status of submissions.
5. The State Office shall track the status of such approved proposals including any conditional commitments and Section 502 loans approved.

Application for Approval of Housing Innovation

(To be completed by the applicant)

Name of Company _____

Address _____

Executive Officer _____

Contact Person _____ Phone Number _____

1. Describe the proposed housing unit innovation.

2. How does the innovation differ from comparable, conventional housing units?

3. How does the innovation deviate from present RHS housing standards for this type of housing unit?

4. **Describe the intended buyer occupants of the housing unit (income levels, age groups, family composition).**

5. **Does the innovation comply with local building codes? Yes _____ No _____**

If “No”, has variance from those codes been approved by local housing authorities?

Yes _____ No _____

Attach documentation of compliance or approval of variance.

6. **What impact, if any, will the innovation have on the health or safety of the:**

a. housing unit occupants

b. local population

7. **What impact, if any, will the innovation have on the physical environment?**

8. **What are your qualifications for implementing the proposed innovation?**

a. Training

b. Experience

9. Will the innovation increase, or decrease, the initial cost of construction?

Increase _____ Decrease _____ Neither increase nor decrease _____

If increase or decrease, by what amount? _____

Explain

Attach documentation

10. Will the innovation increase, or decrease, the cost of maintenance, repairs, or replacements?

Increase _____ Decrease _____ Neither increase nor decrease _____

If increase or decrease, explain, including time frames in your estimations of additional costs or savings.

Attach documentation.

11. Will the innovation make it more feasible for the housing owners to do part of the initial construction or finishing work?

Yes _____ No _____

If yes, describe.

12. Will the innovation make it more feasible for the housing owners to do their own repairs, replacements, or maintenance?

Yes _____ No _____

If yes, describe.

FOR INNOVATIONS INVOLVING BASIC ARCHITECTURE OR CONSTRUCTION

13. What impact will the innovation have on the life expectancy of the housing unit?

_____ shorten life expectancy _____ extend life expectancy

_____ no impact on life expectancy

If shorten or extend life expectancy, explain.

FOR INNOVATIONS INVOLVING A COMPONENT OF THE HOUSING UNIT

14. Compared to comparable, conventional components, will the innovation have a longer, shorter, or the same life expectancy?

shorter _____ longer _____ the same _____

Explain.

15. What impact, if any, will the innovation component have on other parts of the housing unit?

16. Has this innovation been successfully used before?

a. in similar types of housing units. Yes _____ No _____

b. in different types of housing units. Yes _____ No _____
If yes, what types of units?

c. in similar climates. Yes _____ No _____

d. in different types of climates. Yes _____ No _____
If yes, what types of units?

e. in similar geological areas. Yes _____ No _____

f. in different types of geological areas. Yes _____ No _____
If yes, what types of units?

If you answered yes to any part of question 16, attach documentation.

17. Will the innovation make future remodeling or expansion of the unit more feasible?

Yes _____ No _____

If yes, explain

[illegible]

Rural Housing Service
Section 502 Rural Housing Demonstration Program
State Office Technical Evaluation Sheet

Instruction:

Evaluation of Housing Demonstration technical proposal concepts will be based upon analysis of the proposer's concept in relation to the specific criteria contained in the Proposal Content and Evaluation Criteria. This evaluation sheet is keyed to the evaluation criteria. Reviewers should record their evaluation of each proposal in terms of its strengths and weaknesses, i.e., the degree to which the proposal concept possesses or lacks the attributes set forth in the Proposal Content and Evaluation Criteria.

Reviewer's comments should be provided in the space below to indicate basis for the State Office recommendations and any other pertinent observations.

Prior to evaluating the proposer's concepts, it should be screened to determine if it is fully responsive in accordance with the requirements of the Technical Management section of the Proposal Content and Evaluation Criteria. Proposals found to be non-responsive will be removed from further consideration. The State office will return the submission to the proposer with a list of the non-responsive areas identified.

State: _____ Reviewer: _____ Date: _____

Name of Proposer: _____

Address _____

Executive Officer _____

Contact Person _____ Phone Number _____

Proposal Description: _____

The proposal is (check one):

☐ Responsive - complete the technical evaluation sheet

☐ Nonresponsive - return to proposer with explanation

I. Proposal Evaluation (Specific strengths and weaknesses - Use back of evaluation sheets if more space is needed)

A. Housing Unit Concept

- 1. State of Development - is the housing unit ready for full scale field testing in a rural setting:**

| Strengths | Weaknesses |
|-----------|------------|
| | |

- 2. Ability of Housing Concept to provide for the protection of life, property, and for the safety and welfare of occupants:**

| Strengths | Weaknesses |
|-----------|------------|
| | |

- 3. Flexibility of Housing Concepts:**

a. Site Consideration

| Strengths | Weaknesses |
|-----------|------------|
| | |

b. Dwelling Unit Concept

| Strengths | Weaknesses |
|-----------|------------|
| | |



4. Efficiency in the use of material and labor:

| Strengths | Weaknesses |
|-----------|------------|
| | |

5. Materials durability and ease of maintenance:

| Strengths | Weaknesses |
|-----------|------------|
| | |

6. Concepts effect on land use and the environment:

| Strengths | Weaknesses |
|-----------|------------|
| | |

B. Organization Capabilities

1. Experience of organizations or proposer to implement construction of the Housing Unit Concept: Is there evidence of a potential applicant?

| Strengths | Weaknesses |
|-----------|------------|
| | |

2. Evaluation of effectiveness of Management structure and organization of proposer:

| Strengths | Weaknesses |
|-----------|------------|
| | |

3. Qualification of key individuals:

| Strengths | Weaknesses |
|-----------|------------|
| | |

4. The management plan of how construction will be conducted:

| Strengths | Weaknesses |
|-----------|------------|
| | |

5. Is the proposed time schedule realistic?

| Strengths | Weaknesses |
|-----------|------------|
| | |

C. Cost and Price Analysis:

1. **The quality, quantity, and level of detail supporting the cost of constructing the property concept:**

| Strengths | Weaknesses |
|-----------|------------|
| | |

2. **How does this compare with present housing costs in your State?**

| Strengths | Weaknesses |
|-----------|------------|
| | |

3. **Projected housing cost for low- and very low-income individuals:**

| Strengths | Weaknesses |
|-----------|------------|
| | |

II. State Office Summary Review Comments and Recommendations.

- A. Recommendations/Comments (Proposals's overall strengths and weaknesses)

Housing Unit Concept:

Organizational Capabilities:

Cost and Price Analysis:

Other:

B. Recommendation/Rating based on the proposal and objective of the demonstration.

(Check one): ☐ Excellent ☐ Very Good ☐ Good
 ☐ Fair ☐ Poor

Proposal Content and Evaluation Criteria

I. Technical Management. A proposal providing for the design, development, and application of a complete housing unit, including effective use of land, to be considered responsive shall address each of the items listed below. These items have been selected and arranged to provide a basis for the rapid and impartial evaluation of the proposal. Proposal development and design of innovative housing units and systems shall address those items under a housing unit concept which are applicable to the particular situation. For example, appropriate statements are to be made with respect to the housing unit description adaptability, state of development, resolution of potential code problems, cost projections, and reassurance of health and safety.

The proposer is requested to keep the proposal as concise as possible and consistent with providing the requested information. Elaborate brochures and presentation methods are not desired.

A. Housing Unit Concept. A description of the housing unit concept shall include the items listed below (the term “housing unit concept” is considered to include the construction method and process, the effective innovative use of land for single or multiple units, and the interrelations with utilities and other services):

1. Housing Unit Description. Provide written and graphic details of the total housing unit including floor plan and conceptual arrangement drawings and outline specifications. Highlight innovative and unique features. Indicate the relationship between subsystems. Elements to be addressed include rationale for selection of the housing unit concepts including factors of economy, productivity, performance, anticipated benefits, market acceptance, and consumer preference as they relate to the following:
 - a. Architectural: Floor plan at 1/4” per 10’; arrangements of housing units; finishes and aesthetic treatment; comparison with the requirements of national model codes; ability to incorporate varying appearance elements to provide architectural diversity.
 - b. Structural: Structural system (including engineering calculations) and total weather envelope (RHS present “Thermal Performance Construction Standards” used as a minimum) and acoustical treatment and exterior finishes.
 - c. Foundations: Foundation requirements peculiar to the proposed housing unit if separate from the structural system noted above.
 - d. Interior Work: Partitions, floor, wall and ceiling, finishes, cabinetry, trim, built-in furniture, and stair treatment, if any.
 - e. Mechanical: Heating, ventilating and, if applicable, air conditioning; unit air changes; plumbing and fuel supply system piping or conduits; waste disposal.
 - f. Electrical: Power supply and distribution system; lighting system.
 - g. Appliance and Equipment: Describe items which are included, and any special features, interface requirements.

- h. Ancillary Structure and Facilities: Describe any features provided separate from the basic housing unit that are normally part of a total housing complex, such as central laundry facilities and communal areas.
 - i. Land Use Concepts: Outline plans for innovative use of land to permit effective rural communities and small town planning, and effective utility systems.
2. Housing Unit Adaptability. Address the methods planned for adapting the proposed housing units to a variety of housing types and site considerations. Describe in narrative form and by concept drawings, modifications, or variations required to adapt the housing units to these varying situations.
- a. Housing Types: Describe the type of housing for which the unit may be used, and indicate adjustments which may be required. Provide sketches.
 - b. Climatic Area: Designate the climatic area where the housing unit should be placed, and describe design changes required to adapt the unit to each area for which the unit is suitable. Particular reference to the changes to be made to the unit for adaptability to resist severe weather conditions such as hurricane and extreme snow accumulation.
 - c. Geology and Soils: Provide conceptual foundation design for those geologic soil conditions considered as appropriate for the proposed system. Conversely, list the geologic and soil conditions which would preclude the use of the proposed units.
 - d. Site Topography: Provide drawing or sketches which indicate adjustments or modification required to adapt the units to various topographies.
 - e. Site Size: Discuss the ability of the proposed units and its mix of housing types to adapt to various site sizes.
 - f. Site Situations: Designate the types of sites for which the unit is considered appropriate and describe conceptually the unit treatment for each type. Describe the effects on unit design and production due to labor and material availability or similar factors related to site situation.
 - g. “Self-Help” Completion: Describe any work that can be done by the prospective occupant and the degree to which this might be practical. Note any skill or special training required.
 - h. Changes: Discuss the flexibility of the unit with regard to modifications in the unit after construction, including expansion and rearrangements.
 - i. Regional Applications: Discuss the States, regions, or areas of the country where the proposer is willing or interested in construction of this housing unit.
3. State of Housing Unit Development. Describe the present state of development of the housing unit and the subsystem components. Highlight any previous or current experience utilizing the proposed housing unit with particular emphasis on cost, acceptability, construction experience, and health and safety.
4. Constraints. Discuss and list restrictive provisions in the model and local codes that the proposer has resolved and that will not cause conflict with or inhibit the demonstration of the innovative housing unit concept in the selected areas of the country.

5. Housing Unit Cost Projections. Furnish cost projections for each of the following situations: (“housing unit in place cost” is defined as including all construction, utility, and land cost).
 - a. Housing Unit Construction: Construction of the housing unit on sites proposed in the climatic regions noted above.
 - b. Ownership and Operating Cost Projections: Annual cost of ownership and operation of a housing unit, including estimates for utility expenses, insurance, and similar items. State assumptions.
 - c. Maintenance Projections: Annual rate of expense averaged over a 5-year cycle for property maintenance including painting, repairs, and prorated replacement of equipment.
 - d. Useful Life Projections: The probable useful life of the housing unit using separate projections for the structural systems, interior work, and mechanical and electrical system, if appropriate. State any conditions pertinent to the estimate. If housing units are constructed based on settled proposals, the proposer will be required to certify the actual construction cost.
- B. Organization and Staffing. Describe the plan for organizing the total effort required to implement housing unit design and construction. This plan must include the following elements:
 1. Management. An outline of the proposed management framework, including lines of responsibility and illustrating the varied disciplines required. Discuss the organizational and contractual requirements among the parties and their separate and mutual responsibilities, including plans for subcontracting portions of the work where applicable.
 2. Key Individuals. A list of key individuals who will be assigned major management and professional responsibilities. Indicate the responsibilities to be assigned and indicate the persons’ qualification for the proposed assignment.
 3. Data Collection. Describe the types, how, and by whom housing unit evaluation data will be collected and analyzed.
 4. Time Schedule. Prepare a time schedule for development that sets start dates, completion dates, and relationships between different activities.

II. Evaluation Criteria. The Rural Housing Service, in it’s analysis of the proposals received, will give primary consideration to those proposals which demonstrate the greatest potential for carrying out the objectives of this demonstration effort in accordance with the following general criteria.

- A. Housing Unit Concept.
 1. A proposal must be well beyond the “idea” stage. Sufficient testing must have been completed to demonstrate its feasibility. The proposal must be judged ready for full scale field testing in a rural setting.
 2. Ability of the housing unit to provide for the protection of life, property, and for the safety and welfare of the consumer, general public, and occupants through the design, construction, quality of materials, use and maintenance of the housing unit.
 3. Flexibility of the housing unit in relation to varying type of housing and varying site considerations.

4. Flexibility of the housing concept, insofar as it provides the ability to adjust or modify unit size and arrangements, either during design or after construction.
5. Efficiency in the use of materials and labor, with respect to cost in place, the conservation of materials, and the effective use of labor skills. Potential for self-help applicants.
6. Selection of materials for durability and ease of maintenance.
7. Concepts for the effective use of land and environment.

B. Organizational Capabilities.

1. The experience and “know-how” of the proposed organization or individual to implement construction of the housing unit concept in relation to the requirements of RHS’s housing programs. The interests of low- and very low-income rural residents in the proposed housing will be considered.
2. The management structure and organization of the proposer.
3. The quality and diversity of management and professional talent proposed as “key individuals.”
4. The management plan of how this effort will be conducted.

C. Cost and Price Analysis.

1. The level of costs which are proposed, as they may compare with other proposals and be considered realistic for the efforts planned. Also, the quantity and level of detail in the information supplied.
2. Projected cost of “housing in place,” with particular reference to housing for very low and low-income families.